

IV. COMMENTS

IV. COMMENTS

Brown Memorial Presbyterian Church

THERMAL SYSTEM INSULATION

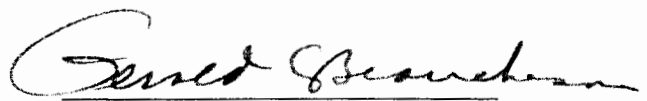
Asbestos was found in both boiler rooms. There is additionally several hundred feet of thermal system insulation in the tunnel connecting the church and the school. The TSI in this area shows evidence of having been damaged in the past by water dripping down from the concrete slab ceiling. The damage has been repaired by means of encasing and encapsulating with plastic sleeves and elbows.

The thermal pipes in other portions of the building appear to be intact and in good condition. All thermal pipe was either under the building in crawl spaces or locked in the above-mentioned tunnel. There was little potential for contact by students or personnel other than those directly involved in maintenance.

VINYL FLOOR TILE

Vinyl tile existed throughout both buildings and because of its age and appearance was assumed to be vinyl asbestos type tile. It was in good condition throughout both buildings.

PLAN DEVELOPED BY:

A handwritten signature in cursive script, reading "Gerald C. Beauchesne", written in black ink.

Gerald C. Beauchesne
EPA AHERA Inspector RWJ0004A
AHERA Management Planner RWJ0003B

Date: 8/30/84

CHAPTER TWO

THE MANAGEMENT PLAN

I. INTRODUCTION

I. INTRODUCTION

As specified in the AHERA Rule, the inspection and management plans are designed to complement one another. Information on the presence/absence of ACM, its condition, and its location in the building becomes the input data for the management plan. The Management Plan uses the inspection data to determine (1) the relative degree of hazard posed by the various ACM in the building, (2) recommended response actions together with the timing of those actions, and (3) recommended management practices (the operations and maintenance program) for any friable ACBM in the building.

According to AHERA, the following key elements comprise the Management Plan:

- * General building description and a summary of the Inspection Report
- * Descriptions of hazard assessments for all ACBM and all suspect material assumed to be ACBM
- * Recommended preventative measures (operations and management program) and/or response actions for any friable ACBM
 - Location of the preventative measures and response actions
 - Reasons for selecting the measures and actions
 - Schedule for implementation
- * Identification of ACBM which remains after response actions are taken
- * Plan for periodically reinspecting ACBM
- * Program for informing workers and building occupants
- * Evaluations of resources needed to implement the management plan

II. GENERAL BUILDING DESCRIPTION/ SUMMARY OF INSPECTION REPORT

GENERAL BUILDING DESCRIPTION

BROWN MEMORIAL PRESBYTERIAN CHURCH

6200 North Charles Street at Woodbrook Lane

Baltimore, Maryland 21212-1098

GENERAL BUILDING DESCRIPTION

Brown Memorial Presbyterian consists of two buildings, the church/sanctuary building and the school. Built in 1961, both are two-story buildings which were constructed of brick and mortar. Both buildings have slate roofs.

The buildings are heated by means of forced hot water boilers pumped through both baseboard convectors and air circulating systems. The heating boilers are located in the school building and piped through a tunnel connecting both buildings. Several hundred feet of the thermal system is covered with asbestos insulation.

The interior walls consist of a combination painted concrete block, plaster, and gypsum board (drywall). The ceilings are plaster covered with blown on surfacing material. The floors are poured concrete covered with vinyl asbestos tile, ceramic tile or carpeting.

III. ELEMENTS OF THE MANAGEMENT PLAN

III. ELEMENTS OF THE MANAGEMENT PLAN
A. HAZARD ASSESSMENT/MATERIALS CLASSIFICATION

III. ELEMENTS OF THE MANAGEMENT PLAN

A. HAZARD ASSESSMENT/MATERIALS CLASSIFICATION

INTRODUCTION

Assessing the hazard potential of ACM is one of the key activities of the Management Plan. Working with the results of the field data, laboratory analyses, and physical assessment of suspect material, the purpose of the Management Plan is to interpret and evaluate the data for the purpose of setting abatement priorities and ranking areas for response actions.

ASSESSMENT METHOD

A number of methods are available for assessing hazards and for identifying the appropriate response actions. AHERA describes hazard assessment as "the means of collecting and considering whatever data were necessary for the management planner to make an informed, responsible recommendation to the LEA consistent with response action requirements." There is no one assessment method that is required in the regulation. The method selected for this report is the use of decision trees, as found in the USEPA Draft "Guidance for Assessing and Managing Exposure to Asbestos in Buildings."

This document proposes the use of "decision trees" for estimating the risks posed by exposure to ACM and recommends certain response actions which are consistent with the AHERA regulations.

Figures IV.A and IV.A.2 are decision trees which have been adapted to conform with the language of the AHERA regulations. To illustrate use of the "tree," consider the following examples:

Example 1

Description: Thermal system ACM was used as an insulation on a boiler, pipes, and water tanks in a basement room. Three custodians routinely enter the room throughout the day. The ACM is accessible and shows both damage and deterioration. Ventilation equipment also causes vibration to the ACM. Maintenance workers may disturb the material while performing repairs.

Assessment: From Figure III.A.2 (for thermal insulation). With damage to the ACM, and high disturbance potential, there exists the potential for significant damage. Response Action 2 is the recommended action.

Example 2

Description: Inspection of a junior high school constructed in 1950, with an addition built in 1969, found that several large steam pipes in a locker room were covered with ACM. There is minor damage, but the pipes run along walls and beneath the ceiling. Some pipes are reachable at floor level, others only if standing upon a bench; a few are only accessible to service workers.

Assessment: In this instance, the damaged material has only moderate potential for disturbance, with no air flow complications. The potential for significant damage does exist, but the possibility is more remote than in Example 1. Response Action 3 is appropriate.

Example 3

Description: In the above school, acoustical ceiling plaster in the band practice room was found to be ACM. It has some water damage, significant physical damage, is friable and subject to constant vibration. It is also an area of moderate activity.

Assessment: Since the ACM is friable and found to be significantly damaged, this ACM should be removed as soon as possible.

Example 4

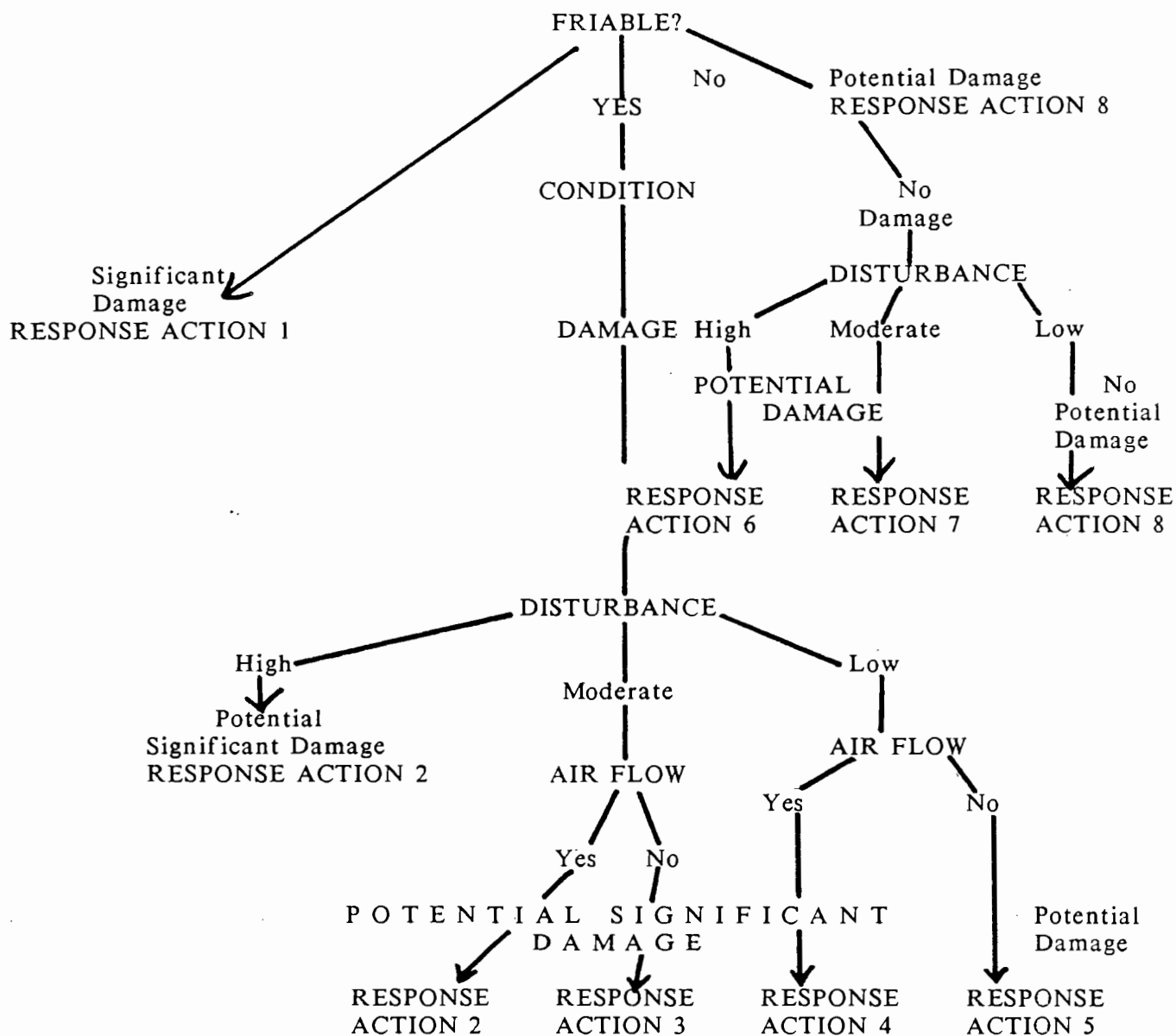
Description: Transite board ceilings in the school boiler room were found to be 55% chrysotile asbestos. The material is friable, but shows no damage or deterioration. The material is accessible by ladder, but shows little sign of contact. There are daily visits by two maintenance personnel, but overall activity is low.

Assessment: In Figure III.A.1, friable material with almost no potential for damage should be kept in good condition as part of an operations and maintenance program until conditions change, or renovation work is undertaken.

In each of these examples, a recommended response action is given based on consideration of the physical parameters affecting ACM. The examples are simple and do not reflect the greater complexities involved in decision making. Changes in activity, the removal of vibration sources, or the enclosure of ACM may reduce the disturbance potential and alter the recommended response action. Likewise, the costs and risks of each action must be weighed carefully and will affect the selection and scheduling of response actions.

FIGURE III.A.1

DECISION TREE FOR SURFACING MATERIALS



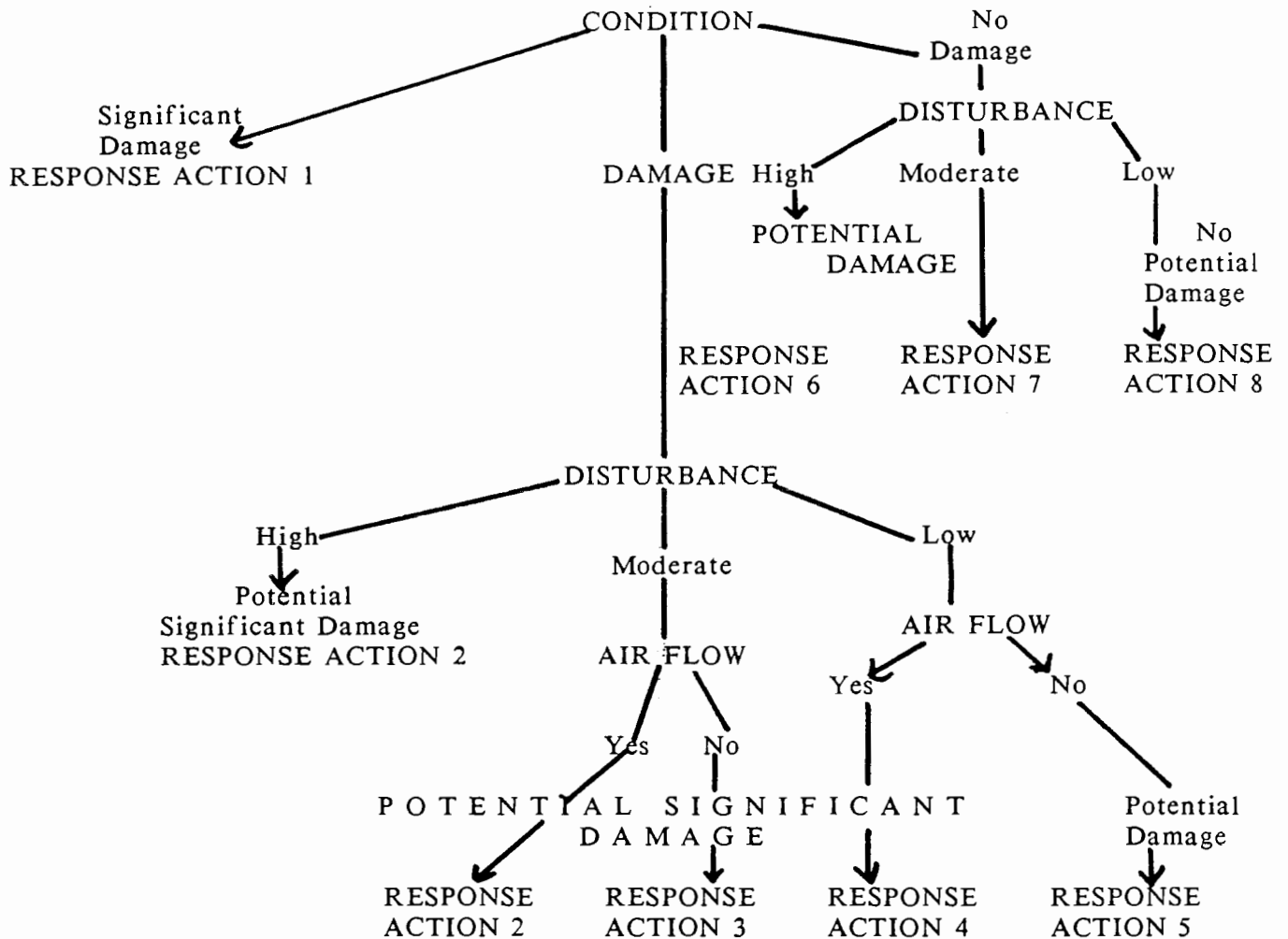
RESPONSE ACTIONS KEY

1. Isolate area and restrict access. Remove as soon as possible.
2. Continue O&M. Remove as soon as possible or reduce potential for disturbance.
3. Continue O&M. Schedule removal when practical and cost-effective, or reduce disturbance.
- 4.-5. Continue O&M. Schedule removal when practical and cost-effective. Number indicates priority for removal.
- 6.-7. Continue O&M. Take preventive measures to reduce disturbance. Number indicates priority for removal.
8. Continue O&M until major renovation or demolition requires removal under NESHAPs or until hazard assessment factors change.

Note: An O&M program may include enclosure and encapsulation, where appropriate to increase effectiveness of O&M.

FIGURE III.A.2

DECISION TREE FOR THERMAL SYSTEM INSULATION



RESPONSE ACTIONS KEY

1. Isolate area and restrict access. Remove as soon as possible.
2. Continue O&M. Repair or remove as soon as possible or reduce potential for disturbance.
- 3.-5. Repair, continue O&M. Number indicates priority if all repairs cannot be done immediately.
- 6.-7. Continue O&M. Take preventive measures to reduce disturbance. Number indicates priority for removal.
8. Continue O&M until major renovation or demolition requires removal under NESHAPs or until hazard assessment factors change.

TABLE III.A.1
CLASSIFICATIONS FOR HAZARD POTENTIAL

| <u>Hazard Rank</u> | <u>ACM Condition</u> | <u>ACM Disturbance Potential</u> |
|--------------------|----------------------|----------------------------------|
| 7 | Poor | Any |
| 6 | Moderate (Fair?) | High |
| 5 | Moderate (Fair?) | Moderate |
| 4 | Moderate (Fair?) | Low |
| 3 | Good | High |
| 2 | Good | Moderate |
| 1 | Good | Low |

TABLE III.A.2
RESPONSE ACTIONS BASED ON HAZARD RANKING

| Hazard Rank | Removal Priority | Recommended Response Action |
|-------------|------------------|--|
| 7 | 1 | Evacuate or isolate the functional area; move the ACM or permanently isolate the area. (By definition, ACM in poor condition cannot be adequately repaired.) |
| 6 | 2 | Institute a comprehensive O&M program with particular attention to rules governing service work near the ACM or occupants' behavior in the functional areas; consider isolating the ACM with an enclosure if removal is to be delayed. |
| 5 | 3 | Same as above. |
| 4 | 4 | Institute a comprehensive O&M program; an enclosure is probably not necessary. |
| 3 | 5 | Institute a comprehensive O&M program with particular attention to rules governing service work near the ACM or occupants' behavior in the functional areas. |
| 2 | 6 | Institute a comprehensive O&M program. |
| 1 | 7 | Same as above. |

III. ELEMENTS OF THE MANAGEMENT PLAN
B. RESPONSE ACTIONS

III. ELEMENTS OF THE MANAGEMENT PLAN

B. RESPONSE ACTIONS

SURFACING MATERIALS

OPERATIONS AND MAINTENANCE

A special O&M program is a set of procedures applied to building renovation, maintenance, cleaning, and general operation to maintain ACM in good condition. It involves (1) informing occupants and training workers, (2) using appropriate work practices, and (3) periodically reinspecting the ACM to ensure that its condition has not deteriorated. Periodic air monitoring may be a useful, although expensive, supplement to the physical inspection. An O&M program is needed as long as ACM of any type remains in the building.

O&M costs include: worker training, additional staff hours, or additional workers to comply with special work practices, respirators and equipment to collect fibers or limit exposure, the application of encapsulants or the construction of enclosures if used, possible health monitoring of workers, and asbestos removal at the time of renovation or demolition as required by NESHAPs. Although costs for initiating an O&M program are relatively modest, the costs are incurred on a continuing basis until ACM is removed.

Exposure of service workers and other building occupants may not be reduced if O&M procedures are not followed carefully. An O&M program requires a substantial ongoing commitment from the building owner and management staff to ensure its effectiveness. If all O&M procedures are not followed, ACM may be disturbed, releasing fibers, endangering workers, and raising asbestos levels throughout the building. Table ____ indicates situations where O&M may be difficult to conduct. However, with the exception of the "building systems" category, O&M performance can be improved by devoting more attention to implementation of the program. Tighter specifications and oversight to ensure that the specifications are met will reduce the likelihood of people disturbing the ACM. changes in the pattern of activities within the building can also improve O&M performance.

REMOVAL

Removal means scraping sprayed- or troweled-on ACM from all interior building surfaces and replacing it with asbestos-free material, if needed. Federal regulations (NESHAPs) require that ACM must be removed prior to demolition of the building contains more than about 160 square feet of surfacing ACM, or prior to renovation of more than about 160 square feet would be broken up or made inaccessible and thereby preventing removal before demolition. Containment of the work site and proper work practices are required. Additional precautions, including careful post-removal cleaning, are necessary if the building is to be reoccupied after removal of the ACM.

The direct costs to be considered for removal include labor, materials, air testing to monitor the work and to confirm post-removal cleaning, replacement materials and their installation, temporary relocation of office workers and equipment, repair of unintentional damage during removal, and insurance. The indirect costs include productivity losses and revenue losses due to disruption of work routines and interruption of regular business operations.

If removal is done properly, the need to continue a full O&M program is eliminated. However, it may be necessary to continue special cleaning methods for an extended period after removal to assure that all residual asbestos fibers have been removed. There is a risk of increased exposure of all building occupants to airborne asbestos if the removal project is conducted carelessly. If the special procedures for removal work mentioned above are not followed, asbestos fibers may escape from the work area, exposing others in the building while the work is in progress. The resulting higher airborne asbestos levels may persist after removal is completed.

REMOVAL

In some situations enclosure may improve the effectiveness of an O&M program. Since the ACM is still present in the building, enclosure does not eliminate the need for a rigorous O&M program. Enclosure involves the construction of airtight walls and ceilings around ACM, to prevent or greatly reduce fiber release into the rest of the building. Enclosure can also reduce accessibility of ACM to service workers and other building occupants and thereby reduce the risk of future fiber release caused by damage or disturbance. Work site containment and proper asbestos work practices are required if installing the enclosure requires drilling into or otherwise disturbing the ACM. This may disrupt normal building activities while the work is in progress.

ENCAPSULATION

Encapsulation may be used in some circumstances to improve the effectiveness of, but not eliminate, an O&M program. Encapsulation involves spraying the ACM with a sealant to bind the fibers and other material components. The objective is to reduce the rate of material deterioration and provide resistance to damage from impact. Encapsulation requires containment of the work site and proper worker protection. The potential for disruption of building activities is high. Encapsulation should be used only on undamaged, granular, cementitious material (acoustical plaster). Encapsulation may also make eventual removal more costly and difficult.

OTHER CONTROL OPTIONS

New products combining characteristics of encapsulation and enclosure are not under development. Some promise to eliminate both the need for removal and for O&M. These claims should be evaluated carefully, especially those about avoiding NESHAPs-required removal just prior to building demolition. ACM that has been treated with one of these products may be more difficult to remove than untreated ACM. The risks associated with applying the product should also be considered.

THERMAL SYSTEM INSULATION

OPERATIONS AND MAINTENANCE

The elements of the O&M program and the costs and risks are the same as those described for surfacing materials. Since service workers rather than general building occupants are more likely to disturb these types of ACM, the emphasis is on alerting workers to the location of the ACM and the importance of taking precautions prior to maintenance or repair of the pipe or boiler or other system components.

REPAIR

When damage to pipe or boiler insulation is limited, repair (taping, plastering, installing a new protective jacket) is the recommended control method. The O&M program should continue while ACM remains in the building.

REMOVAL

Removal involves stripping the asbestos-containing insulation from pipes and other system components and replacing it with non-asbestos insulation. NESHAPs regulations require that asbestos-containing thermal insulation be removed prior to building demolition (if more than about 260 linear feet are present in the building), or removed prior to renovation if more than about 260 linear feet would be broken up or made inaccessible, thereby preventing removal before demolition.

COMPARISON OF ALTERNATIVE COURSES OF ACTION

| <u>ALTERNATIVE</u> | <u>ADVANTAGES</u> | <u>DISADVANTAGES</u> |
|--|--|---|
| Long-Term Use of Operations and Maintenance Plan | <ol style="list-style-type: none">1. Lowest initial cost2. Good interim plan until funding becomes available for removal.3. Allows asbestos removal to occur over a period of years, thus spreading expenditure.4. Allows deferral of removal cost until renovation activities necessitate corrective action. | <ol style="list-style-type: none">1. Asbestos source remains.2. Constant surveillance (O&M Plan) is required in occupied areas.3. Cost of training and maintaining task air monitoring surveillance is significant.4. Long-term life cycle cost may be greater than that of removal. |
| Encapsulation | <ol style="list-style-type: none">1. Reduces asbestos fiber release from material.2. Initial cost typically lower than removal or enclosure.3. Fireproofing material would not need replacement.4. Quick temporary corrective action for damage to insulation material on piping and associated mechanical equipment. | <ol style="list-style-type: none">1. Asbestos source remains and may have to be removed at a later date. Asbestos removal from encapsulated surfaces will increase future removal cost.2. Encapsulating agent may cause asbestos material to delaminate from substrate.3. O&M Plan needs to be kept active.4. All the preparation activities for asbestos removal need to be implemented during encapsulation.5. Long-term life cycle cost is typically greater than removal. |

| <u>ALTERNATIVE</u> | <u>ADVANTAGES</u> | <u>DISADVANTAGES</u> |
|--------------------|---|---|
| Enclosure | <ol style="list-style-type: none">1. Reduces immediate exposure2. Initial cost is typically lower than removal.3. Fireproofing and insulation materials would not need replacement.4. Quick temporary corrective action for damage to insulation material on piping and associated mechanical equipment. | <ol style="list-style-type: none">1. Asbestos source remains and may have to be removed at a later date. Enclosure will typically increase future removal cost.2. Maintenance would require the removal of enclosure, thereby exposing asbestos material while obtaining access to pipes, conduit, ventilation system, etc., and requiring special work practice procedures by maintenance personnel.3. O&M Plan needs to be kept active.4. Fibers may be released during construction of enclosure and would, therefore, require the same preparation as that of removal and encapsulation.5. Long-term life cycle cost is typically greater than removal. |
| Removal | <ol style="list-style-type: none">1. Eliminates asbestos-containing material.2. Eliminates continued need for O&M plan.3. Life cycle cost may be lowest when complete removal is implemented. | <ol style="list-style-type: none">1. Refireproofing and reinsulation need to be implemented.2. Improper removal may increase airborne asbestos fiber concentration above prevalent levels.3. Initial cost is usually highest of all methods.4. Building operations may have to be shut down temporarily at various points in the construction phase (i.e., removal of asbestos fireproofing in mechanical room where make-up air is obtained). |

III. ELEMENTS OF THE MANAGEMENT PLAN
C. REMAINING ASBESTOS

III. ELEMENTS OF THE MANAGEMENT PLAN

C. REMAINING ASBESTOS

As long as ACM remains in the building, a fiber release episode could occur. Custodial and maintenance workers should report to the asbestos program manager the presence of debris on the floor, water or physical damage to the ACM, or any other evidence of possible fiber release. Fiber release episodes can also occur during maintenance or renovation projects. The asbestos program manager should call an abatement contractor or assign a suitably trained in-house team to clean up debris and make repairs as soon as possible. If an outside contractor is to be used, a company should be selected and retained by contract for quick response as needed. Please refer to the section on Fiber Release Episodes in Chapter Three for more detailed information.

III. ELEMENTS OF THE MANAGEMENT PLAN
D. REINSPECTION AND OTHER ACTIVITIES

III. ELEMENTS OF THE MANAGEMENT PLAN

D. REINSPECTION AND OTHER ACTIVITIES

Periodic review of the O&M program is essential to ensure that the program objectives are being met. A key feature of the review is reinspection of all ACM in the building. Combined with ongoing reports of changes in the condition of the ACM made by services workers, the reinspection will ensure that any damage or deterioration of the ACM will be detected and corrective action taken. Reinspection should be conducted twice annually; more frequently if necessary. The assessment factors are: ACM condition (deterioration, physical damage, and water damage), potential for disturbance (accessibility of the ACM, sources of vibration near the ACM, and potential for air erosion), and location of the ACM in or near air plenums, air shafts, or elevator shafts. Either the asbestos program manager or someone trained or experienced in ACM assessment should conduct the inspections. The results should be documented and placed in the permanent asbestos file. Please refer to the section ACM Surveillance in Chapter Three for more detail.

IV. THE MANAGEMENT PLAN

IMPLEMENTATION PLAN

Brown Memorial Presbyterian Church
6200 North Charles Street at Woodbrook Lane
Baltimore, Maryland 21212-1098

Month/Year

AHERA Compliance Activity

1988

August/September

Appoint Asbestos Coordinator
Post Warning Signs

October

AHERA Presentation at Parents' Association
Meeting

October/November

Asbestos Coordinator Training
Custodial and Maintenance Staff Training

December

Complete Encapsulation (Taping and Sealing)
Complete HEPA Vac Cleaning

1989

March

First Periodic Inspection

September

Second Periodic Inspection

MANAGEMENT PLAN

SCHOOL Brown Memorial Presbyterian ChurchROOM NUMBER See next page

SAMPLE NUMBER _____

HOMOGENEOUS AREA NUMBER _____

TYPE OF MATERIAL Vinyl Asbestos TileHAZARD ASSESSMENT:HAZARD RANK 1

| <u>Factors</u> | <u>Range or Extent</u> | <u>Condition Present</u> | |
|--|--|--------------------------|-----------|
| | | <u>Yes</u> | <u>No</u> |
| 1. Material Conditions (Deterioration/ Damage) | None | — | <u>X</u> |
| | Minor | — | — |
| | Widespread | — | — |
| 2. Water Damage | None | — | <u>X</u> |
| | Minor | — | — |
| | Moderate to major | — | — |
| 3. Exposed Surface | Not Exposed. Located above suspended ceiling. None visible without removing panels or ceiling sections | — | — |
| | 10% or less of the material is exposed | — | — |
| | 10% to 100% of the material is exposed | <u>X</u> | — |
| 4. Accessibility | Not accessible | — | — |
| | Low: Rarely accessible | — | — |
| | Moderate to high: Access may be frequent | <u>X</u> | — |
| 5. Activity & Movement | None or low: Libraries, most classrooms | — | — |
| | Moderate: Some classrooms, corridors | — | — |
| | High: Some corridors and cafeterias; all gymnasiums | <u>X</u> | — |
| 6. Air Plenum or Direct Air Streams | None | — | <u>X</u> |
| | Present | — | — |
| 7. Friability | Not friable | — | <u>X</u> |
| | Low friability. Difficult but possible to damage by hand. | — | — |
| | Moderate friability. Fairly easy to dislodge and crush. | — | — |
| 8. Asbestos Content (total & present) | Trace to 1% | <u>Assumed ACBM</u> | |
| | 1% to 50% | — | — |
| | 50% to 100% | — | — |

RECOMMENDED PREVENTATIVE MEASURES/RESPONSE ACTIONS:

Continue O&M until renovation or demolition requires removal under NESHAPs, or until hazard assessment factors change.

IMPLEMENTATION SCHEDULE:

Immediately

REMAINING ACBM:

Location: See below

Reinspection Plan: Inspect twice a year for evidence of damage or deterioration

Educational Program: (1) Awareness Training Program; (2) Training for Service and Maintenance Personnel; (3) Asbestos Coordinator Training Program.

Budget/Costs:

- | | |
|--|-----------------------|
| 1. Reinspection | Cost to be determined |
| 2. Awareness Training | No charge |
| 3. Training Programs for Asbestos Coordinator & Service and Maintenance Personnel have not been developed by the EPA as yet. Cost figures are not available. | |

VINYL ASBESTOS FLOOR TILE IS LOCATED IN THE FOLLOWING:

| <u>Rooms</u> | <u>Corridors</u> | <u>Stairs</u> | <u>Other</u> |
|--------------|------------------|-----------------|--------------------------|
| 33 | Lower | South Stairwell | Boiler Storage 31 |
| 38 | Main | | Main Lobby |
| 39 | New Corridor | | Church Office |
| 13/14/15 | (Fellowship) | | Chapel |
| 8 | | | Ladies' Rest Room |
| 11 | | | Men's Rest Room |
| 10 | | | Library #16 |
| 9 | | | Choir Master's Office |
| 12 | | | Game Room |
| 17 | | | Choir Corridor, Vestment |
| 42 | | | Kitchen |
| 36 | | | Dining Room |
| 41 | | | Choir Room |
| 37 | | | Robing Rooms |
| 40 | | | Kitchen (Fellowship) |
| 44 | | | Youth Center |
| | | | Youth Kitchen |

MANAGEMENT PLAN

SCHOOL Brown Memorial Presbyterian Church
 ROOM NUMBER Boiler Storage, Storage Room, Room 44
 SAMPLE NUMBER _____
 HOMOGENEOUS AREA NUMBER _____
 TYPE OF MATERIAL TSI

HAZARD ASSESSMENT:HAZARD RANK 1

| <u>Factors</u> | <u>Range or Extent</u> | <u>Condition Present</u> | |
|--|--|--------------------------|----------|
| | | Yes | No |
| 1. Material Conditions (Deterioration/ Damage) | None | — | <u>X</u> |
| | Minor | — | — |
| | Widespread | — | — |
| 2. Water Damage | None | — | <u>X</u> |
| | Minor | — | — |
| | Moderate to major | — | — |
| 3. Exposed Surface | Not Exposed. Located above suspended ceiling. None visible without removing panels or ceiling sections | — | — |
| | 10% or less of the material is exposed | — | — |
| | 10% to 100% of the material is exposed | <u>X</u> | — |
| 4. Accessibility | Not accessible | — | — |
| | Low: Rarely accessible | <u>X</u> | — |
| | Moderate to high: Access may be frequent | — | — |
| 5. Activity & Movement | None or low: Libraries, most classrooms | — | — |
| | Moderate: Some classrooms, corridors | <u>X</u> | — |
| | High: Some corridors and cafeterias; all gymnasiums | — | — |
| 6. Air Plenum or Direct Air Streams | None | — | <u>X</u> |
| | Present | — | — |
| 7. Friability | Not friable | — | <u>X</u> |
| | Low friability. Difficult but possible to damage by hand. | — | — |
| | Moderate friability. Fairly easy to dislodge and crush. | — | — |
| 8. Asbestos Content (total & present) | Trace to 1% | <u>Assumed ACBM</u> | |
| | 1% to 50% | — | — |
| | 50% to 100% | — | — |

RECOMMENDED PREVENTATIVE MEASURES/RESPONSE ACTIONS:

Continue O&M. Take preventive measures to reduce disturbance. Number (7) indicates priority for removal.

IMPLEMENTATION SCHEDULE:

Immediately

REMAINING ACBM:

Location: Boiler Storage, Storage Room, Room 44

Reinspection Plan: Inspect twice a year for evidence of damage or deterioration

Educational Program: (1) Awareness Training Program; (2) Training for Service and Maintenance Personnel; (3) Asbestos Coordinator Training Program.

Budget/Costs:

1. Reinspection

2. Awareness Training

No charge

3. Training Programs for Asbestos Coordinator & Service and Maintenance Personnel have not been developed by the EPA as yet. Cost figures are not available.

MANAGEMENT PLAN

SCHOOL Brown Memorial Presbyterian Church
 ROOM NUMBER Boiler Room, Fellowship
 SAMPLE NUMBER BMFLBRGB30, BMFLBRGB30(OA)
 HOMOGENEOUS AREA NUMBER Random
 TYPE OF MATERIAL Plaster Insulation Around A/C Duct

HAZARD ASSESSMENT:

HAZARD RANK 5

| <u>Factors</u> | <u>Range or Extent</u> | <u>Condition Present</u> | |
|--|--|--------------------------|-----------|
| | | <u>Yes</u> | <u>No</u> |
| 1. Material Conditions (Deterioration/ Damage) | None | — | — |
| | Minor | <u>X</u> | — |
| | Widespread | — | — |
| 2. Water Damage | None | — | <u>X</u> |
| | Minor | — | — |
| | Moderate to major | — | — |
| 3. Exposed Surface | Not Exposed. Located above suspended ceiling. None visible without removing panels or ceiling sections | — | — |
| | 10% or less of the material is exposed | — | — |
| | 10% to 100% of the material is exposed | <u>X</u> | — |
| 4. Accessibility | Not accessible | — | — |
| | Low: Rarely accessible | <u>X</u> | — |
| | Moderate to high: Access may be frequent | — | — |
| 5. Activity & Movement | None or low: Libraries, most classrooms | — | — |
| | Moderate: Some classrooms, corridors | <u>X</u> | — |
| | High: Some corridors and cafeterias; all gymnasiums | — | — |
| 6. Air Plenum or Direct Air Streams | None | — | <u>X</u> |
| | Present | — | — |
| 7. Friability | Not friable | — | — |
| | Low friability. Difficult but possible to damage by hand. | <u>X</u> | — |
| | Moderate friability. Fairly easy to dislodge and crush. | — | — |
| 8. Asbestos Content (total & present) | Trace to 1% | — | — |
| | 1% to 50% | <u>X</u> | — |
| | 50% to 100% | — | — |

RECOMMENDED PREVENTATIVE MEASURES/RESPONSE ACTIONS:

Repair, continue O&M. Number (3) indicates priority if all repairs cannot be done immediately.

IMPLEMENTATION SCHEDULE:

Immediately

REMAINING ACBM:

Location: Broiler Room, Fellowship

Reinspection Plan: Inspect twice a year for evidence of damage or deterioration

Educational Program: (1) Awareness Training Program; (2) Training for Service and Maintenance Personnel; (3) Asbestos Coordinator Training Program.

Budget/Costs:

1. Reinspection Cost to be determined
2. Awareness Training No charge
3. Training Programs for Asbestos Coordinator & Service and Maintenance Personnel have not been developed by the EPA as yet. Cost figures are not available.

MANAGEMENT PLAN

SCHOOL Brown Memorial Presbyterian Church
 ROOM NUMBER Boiler Room, Main
 SAMPLE NUMBER BMSLBRGB29
 HOMOGENEOUS AREA NUMBER Random
 TYPE OF MATERIAL Plaster, Insulation around the Duct

HAZARD ASSESSMENT:HAZARD RANK 5

| <u>Factors</u> | <u>Range or Extent</u> | <u>Condition Present</u> | |
|--|--|--------------------------|----------|
| | | Yes | No |
| 1. Material Conditions (Deterioration/ Damage) | None | — | — |
| | Minor | <u>X</u> | — |
| | Widespread | — | — |
| 2. Water Damage | None | — | <u>X</u> |
| | Minor | — | — |
| | Moderate to major | — | — |
| 3. Exposed Surface | Not Exposed. Located above suspended ceiling. None visible without removing panels or ceiling sections | — | — |
| | 10% or less of the material is exposed | — | — |
| | 10% to 100% of the material is exposed | <u>X</u> | — |
| 4. Accessibility | Not accessible | — | — |
| | Low: Rarely accessible | <u>X</u> | — |
| | Moderate to high: Access may be frequent | — | — |
| 5. Activity & Movement | None or low: Libraries, most classrooms | — | — |
| | Moderate: Some classrooms, corridors | <u>X</u> | — |
| | High: Some corridors and cafeterias; all gymnasiums | — | — |
| 6. Air Plenum or Direct Air Streams | None | — | <u>X</u> |
| | Present | — | — |
| 7. Friability | Not friable | — | — |
| | Low friability. Difficult but possible to damage by hand. | — | — |
| | Moderate friability. Fairly easy to dislodge and crush. | <u>X</u> | — |
| 8. Asbestos Content (total & present) | Trace to 1% | — | — |
| | 1% to 50% | — | — |
| | 50% to 100% | <u>X</u> | — |

RECOMMENDED PREVENTATIVE MEASURES/RESPONSE ACTIONS:

Repair, continue O&M. Number (3) indicates priority of all repairs cannot be done immediately.

IMPLEMENTATION SCHEDULE:

Immediately

REMAINING ACBM:

Location: Boiler Room, Main

Reinspection Plan: Inspect twice a year for evidence of damage or deterioration

Educational Program: (1) Awareness Training Program; (2) Training for Service and Maintenance Personnel; (3) Asbestos Coordinator Training Program.

Budget/Costs:

- | | |
|--|------------------------|
| 1. Reinspection | Costs to be determined |
| 2. Awareness Training | No charge |
| 3. Training Programs for Asbestos Coordinator & Service and Maintenance Personnel have not been developed by the EPA as yet. Cost figures are not available. | |

MANAGEMENT PLAN

SCHOOL Brown Memorial Presbyterian Church
 ROOM NUMBER Boiler Room Main
 SAMPLE NUMBER BMSLBRGB28
 HOMOGENEOUS AREA NUMBER Random
 TYPE OF MATERIAL Plaster, Boiler Lagging Insulation

HAZARD ASSESSMENT:HAZARD RANK 3

| <u>Factors</u> | <u>Range or Extent</u> | <u>Condition</u> | |
|--|--|------------------|----------|
| | | <u>Present</u> | |
| | | Yes | No |
| 1. Material Conditions (Deterioration/ Damage) | None | — | <u>X</u> |
| | Minor | — | — |
| | Widespread | — | — |
| 2. Water Damage | None | — | <u>X</u> |
| | Minor | — | — |
| | Moderate to major | — | — |
| 3. Exposed Surface | Not Exposed. Located above suspended ceiling. None visible without removing panels or ceiling sections | — | — |
| | 10% or less of the material is exposed | — | — |
| | 10% to 100% of the material is exposed | <u>X</u> | — |
| | | — | — |
| 4. Accessibility | Not accessible | — | — |
| | Low: Rarely accessible | <u>X</u> | — |
| | Moderate to high: Access may be frequent | — | — |
| 5. Activity & Movement | None or low: Libraries, most classrooms | — | — |
| | Moderate: Some classrooms, corridors | <u>X</u> | — |
| | High: Some corridors and cafeterias; all gymnasiums | — | — |
| | | — | — |
| 6. Air Plenum or Direct Air Streams | None | — | <u>X</u> |
| | Present | — | — |
| 7. Friability | Not friable | — | <u>X</u> |
| | Low friability. Difficult but possible to damage by hand. | — | — |
| | Moderate friability. Fairly easy to dislodge and crush. | — | — |
| | | — | — |
| 8. Asbestos Content (total & present) | Trace to 1% | — | — |
| | 1% to 50% | — | — |
| | 50% to 100% | <u>X</u> | — |

RECOMMENDED PREVENTATIVE MEASURES/RESPONSE ACTIONS:

Continue O&M. Take preventive measures to reduce disturbance. Number (6) indicates priority for removal.

IMPLEMENTATION SCHEDULE:

Immediately

REMAINING ACBM:

Location: Boiler Room Main

Reinspection Plan: Inspect twice a year for evidence of damage or deterioration

Educational Program: (1) Awareness Training Program; (2) Training for Service and Maintenance Personnel; (3) Asbestos Coordinator Training

Program. Budget/Costs:

1. Reinspection Costs to be determined
2. Awareness Training No charge
3. Training Programs for Asbestos Coordinator & Service and Maintenance Personnel have not been developed by the EPA as yet. Cost figures are not available.

V. RESOURCES/BUDGET

BUDGET

BUDGET

O&M PLAN

BUDGETED AMOUNT

| | | |
|----|--|---------------------|
| 1. | Worker Training | |
| | a. Awareness Training | No Charge |
| | b. Asbestos Coordinator Training | Costs Not Available |
| | c. Service/Maintenance Training | Costs not Available |
| 2. | Additional Staff | |
| | Hours/Workers to Comply with Special Work Practices | |
| | (48 hrs @ \$5/hr = \$240) | \$ 240 |
| 3. | Respirators and Equipment | |
| | HEPA Vac Rental (\$40/day x 6 days = \$240) | \$ 240 |
| | Respirator and Cartridge | \$ 50 |
| 4. | Application of Encapsulants (Taping and Sealing) | 1,500 |
| 5. | Health Monitoring of Workers | NA |
| 6. | Asbestos Removal | NA |
| 7. | Periodic Inspections/Long-Term Surveillance | |
| | Reinspections | Cost Not Available |
| | Full Inspection (Every 3 years) | Cost Not Available |

PLAN DEVELOPED BY:

A handwritten signature in dark ink, appearing to read "Gerald C. Beauchesne". The signature is fluid and cursive, with the first name "Gerald" and last name "Beauchesne" clearly distinguishable.

Gerald C. Beauchesne
EPA AHERA Inspector RWJ0004A
AHERA Management Planner RWJ0003B

Date: 8/30/88

CHAPTER THREE
THE OPERATIONS/MAINTENANCE AND REPAIR PROGRAM
(O&M PROGRAM)

I. INTRODUCTION

I. INTRODUCTION

A. O&M PROGRAM OBJECTIVES

The overall goal of an asbestos O&M program is to maintain the building environment free of asbestos contamination. The specific program objectives are to (1) remove asbestos fibers that may have been released from the ACM and (2) minimize future release and distribution of fibers by controlling activities that might disturb the ACM.

The O&M program focuses on the activities of custodial and maintenance workers and service contractors. Special procedures for routine cleaning by custodial workers are designed to achieve the first program objective--collecting previously released fibers. In order to achieve the second program objective--minimizing ACM disturbance--special work practices are designed for maintenance workers. Work practices are tailored to four types of projects: (1) those which are unlikely to involve any contact with ACM, (2) those which may cause accidental disturbance of ACM, (3) those which involve small-scale manipulation or removal of ACM, and (4) those which involve large-scale manipulation or removal of ACM. Response actions for fiber release episodes are also specified in the O&M program.

B. LAYING THE FOUNDATION FOR AN EFFECTIVE PROGRAM

A successful O&M program requires a serious commitment from all levels of management. This commitment starts with an administrative organization and a plan. The key person is the asbestos program manager. The EPA recommends that the building owner appoint an asbestos program manager (typically the health and safety officer, risk manager, physical plant director, buildings and grounds director, or facilities manager) prior to the first step in an asbestos control program--the building survey. If asbestos is found, the program manager continues as the lead person in the control program, including training in abatement techniques. OSHA requires that essentially the same type of person (called a "competent person" in the Rules) be appointed to supervise major renovation, demolition, and ACM removal projects. The asbestos program manager should have authority to direct the custodial and maintenance staffs and outside contractors.

Wherever possible, the O&M program organization should reflect the existing organizational structure for building management. Figures I.B.1. and I.B.2. demonstrate two possible arrangements of the organizational structure responsible for the implementation of the O&M plan. The roles and responsibilities of organizational structure are defined as follows.

Asbestos Program Manager. Has overall responsibility for the asbestos control program. Coordinates all activities. May also administer the respiratory protection program.

Physical Plant Manager (may also be the Asbestos Program Manager). Participates in establishing work practices for cleaning and maintenance activities, and in training custodial and maintenance staff to use them. Assists in implementing the O&M program and in conducting periodic reinspections of the ACM. Ensures that outside contractors follow O&M procedures.

Communications Person (Public Affairs Officer, Nurse, Physician, Industrial Hygienist). Assists in preparation and distribution of information about ACM in the building.

Recordkeeping Person (Executive Assistant, Secretary). Responsible for maintaining records.

EPA Regional Asbestos Coordinator and State/Local Government Advisors. Provide general guidance and answer specific questions.

Asbestos Consultant(s) (Industrial Hygienists, Health Professionals, Architects, and others). May assist in various aspects of the program.

Lawyer. Provides advice on legal requirements and liability aspects of the program.

Asbestos Contractor. May provide services for ACM abatement and for building decontamination following a fiber release episode.

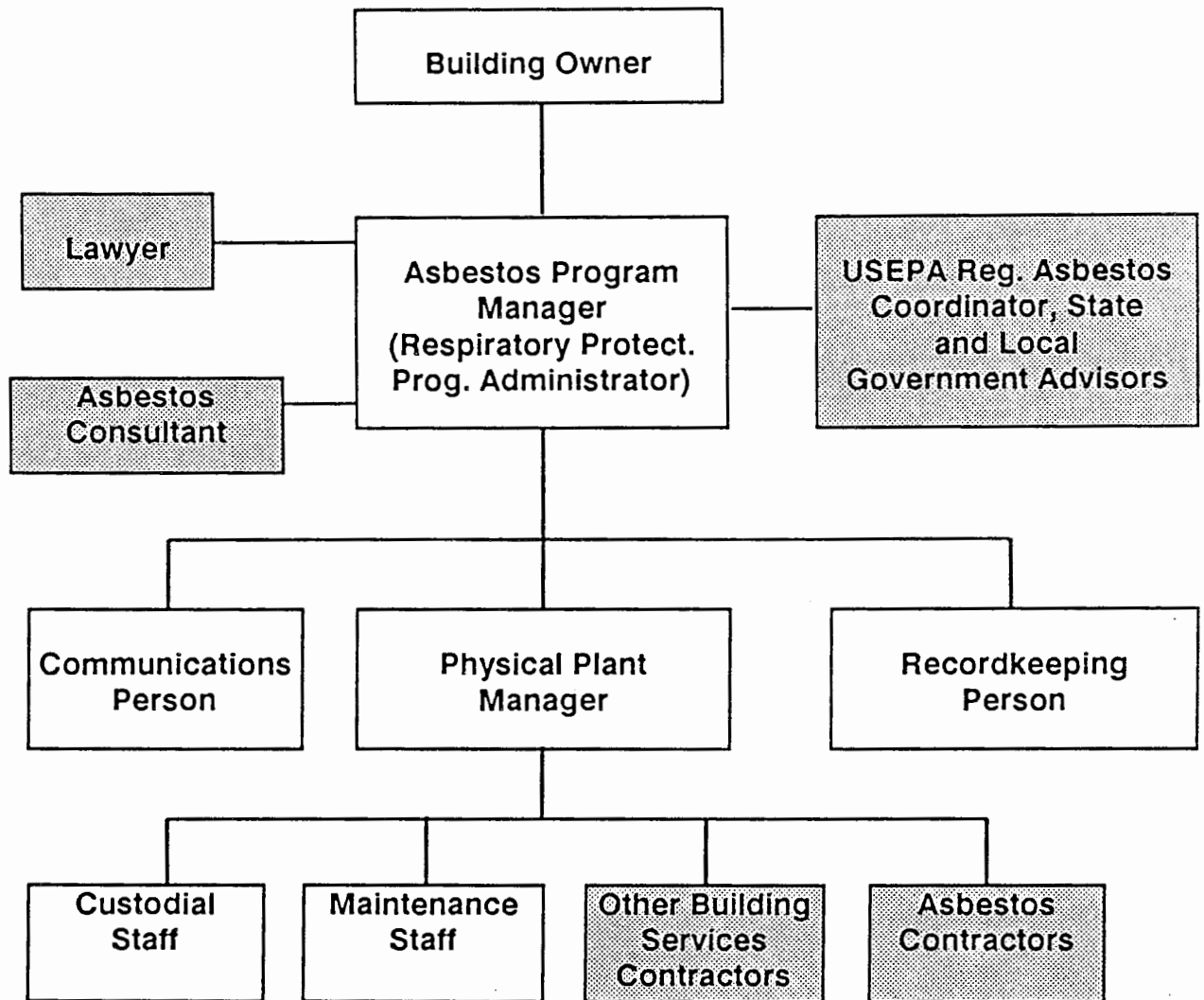


Figure I.B.1. A suggested organization for a school with a large in-house management staff. Shaded boxes indicate outside assistance.

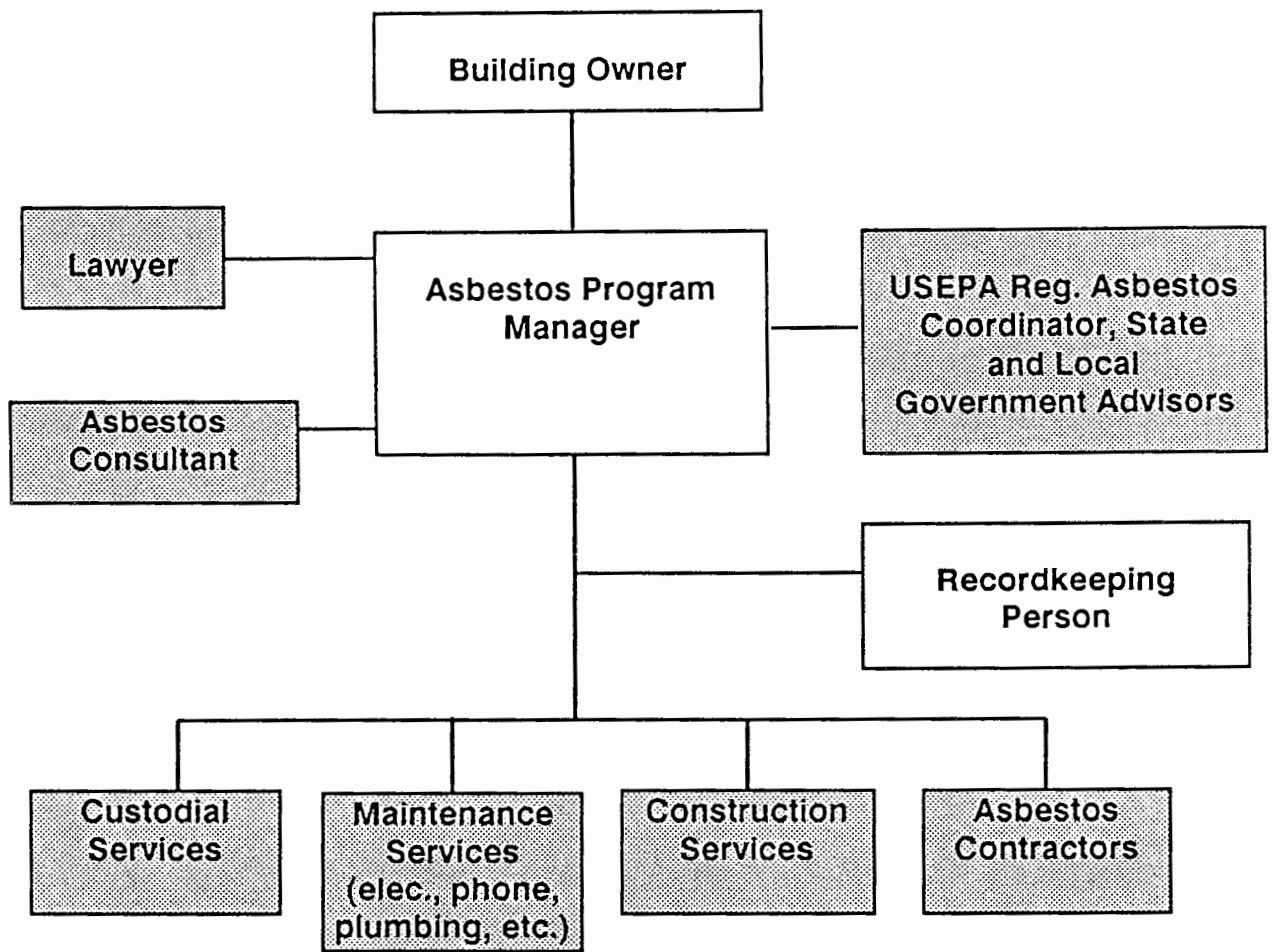


Figure I.B.2. A suggested organization for a school where services are provided by contract. Shaded boxes indicate outside assistance.

II. ELEMENTS OF AN O&M PROGRAM
A. INFORMING BUILDING OCCUPANTS

II. ELEMENTS OF AN O&M PROGRAM

To achieve its objectives, a special O&M program should include the following elements:

1. A program for informing building occupants.
2. Work practices for cleaning the building and minimizing ACM disturbance during maintenance and renovation.
3. Procedures for cleaning up asbestos fibers after a fiber release episode.
4. Respiratory protection and medical surveillance programs.
5. A training program for maintenance and service workers and requirements for outside contractors.
6. Regular surveillance of the ACM (assessing changes in ACM characteristics).
7. Recordkeeping.

These elements should appear in every special O&M program, even though the extent of each element will vary from program to program depending on the building and the type and condition of the ACM in it. Each element is described below to provide an overview of the O&M program. Where appropriate, detailed specifications are given in later sections.

A. INFORMING BUILDING OCCUPANTS

This involves informing building occupants of the location of ACM and the need to avoid disturbing it. The building owner has two concerns. First, building occupants should be informed of any potential hazard in the building. Second, building occupants who are informed and instructed about ACM are less likely to inadvertently disturb the material and cause fibers to be released into the air. EPA recommends that owners inform building occupants even if levels of airborne fibers in occupied spaces are below the OSHA action level (an 8-hour time-weighted average of 0.1 f/cc)--the level at which OSHA mandates notification.

Building occupants can be informed in at least three ways: by distributing notices, posting signs, and holding awareness or information sessions. The methods used may depend the type and location of the ACM, and on the number of people affected. Some states have "right-to-know" laws which may require that all occupants and visitors to buildings with ACM be informed that asbestos is present.

Signs such as "Caution--Asbestos--Do Not Disturb" placed on ACM will serve to alert and remind building occupants not to disturb ACM. Certainly all boilers, pipes, and equipment with ACM in accessible locations should be tagged with warning signs. Frequently boiler and air-handling rooms are posted with signs which restrict access to everyone except service personnel who need to work there.

Information sessions reinforce and clarify written notices and signs, and provide an opportunity to answer questions. All new employees should be included in the notification program on a continuing basis. New employees need to be informed and/or trained before beginning work. Additional signs and information sessions in languages other than English should be provided where English is a second language for a significant number of workers or visitors.

Administrators of primary and secondary schools were required by EPA to inform employees and parent-teacher groups about friable ACM in the schools, and to distribute specified instructions on handling ACM to custodial and maintenance workers.

Whatever its form, the information given to building occupants should contain the following points:

- * Asbestos is a potential health hazard.
- * Material containing asbestos has been found in the building.
- * The ACM is currently in good condition (or has been encapsulated or enclosed) and should not present a danger unless disturbed or damaged.
- * The ACM is found in the following locations (e.g., ceilings in Rooms 101-110, walls in the auditorium, above suspended ceilings in first floor corridor, on columns in the lobby, on pipes in the boiler room).

- * Avoid disturbing the ACM (e.g., do not hang plants or pictures on the ACM, do not push furniture against the ACM, do not remove ceiling tiles).
- * Report any evidence of disturbance or damage.
- * Cleaning and maintenance personnel are taking special precautions during their work to properly clean up asbestos debris and to guard against disturbing the ACM.
- * All ACM is inspected periodically and additional measures will be taken when needed to protect the health of building occupants.
- * Report any dust or debris from ACM, any change in the condition of the ACM, or any improper action of building personnel to (name and phone number).